(51) **International Patent Classification**[7]: **G06K 9/18**

(21) **International Application Number:**
PCT/SG2003/000072

(22) **International Filing Date:** 4 April 2003 (04.04.2003)

(25) **Filing Language:** English

(26) **Publication Language:** English

(71) **Applicant** *(for all designated States except US)*: **DATA-MARK TECHNOLOGIES PTE LTD** [SG/SG]; 100 Jurong East Street 21, Singapore 609602 (SG).

(72) **Inventors; and**
(75) **Inventors/Applicants** *(for US only)*: **HO, T. S. Anthony** [SG/SG]; c/o DataMark Technologies Pte Ltd, 100 Jurong East Street 21, Singapore 609602 (SG). **SHEN, Jun** [SG/SG]; c/o DataMark Technologies Pte Ltd, 100 Jurong East Street 21, Singapore 609602 (SG). **CHOW, K. K. Andrew** [SG/SG]; c/o DataMark Technologies Pte Ltd, 100 Jurong East Street 21, Singapore 609602 (SG). **WOON, W. M. Jeremiah** [SG/SG]; c/o DataMark Technologies Pte Ltd, 100 Jurong East Street 21, Singapore 609602 (SG).

(74) **Agent: SIM, Yuan Meng, Andrew**; c/o Shook Lin & Bok, 1 Robinson Road, AIA Tower, Singapore 048542 (SG).

(81) **Designated States** *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States** *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
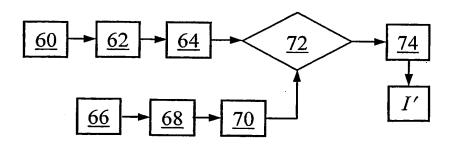
Published:
— with international search report
— with amended claims and statement

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title: A WATERMARKING METHOD AND APPARATUS**

(57) **Abstract:** The invention provides a method and apparatus for watermarking a document, the method comprising: associating the document with an identification number; generating (70) a first set of numbers using a seed for the number generation comprising or derived from the identification number; applying a transform (62) to at least a portion of an image of the document to form a transform of the image; defining a second set of numbers comprising transform coefficients from the transform of the image; forming a modified second set of numbers based on the first set and the second set; substituting the modified second set for the second set in the transform of the image to form a modified transform (72); and applying an inverse (74) of the transform to the modified transform to thereby produce a modified image of the document; whereby the modified image of the document or an output of the modified image constitutes the watermarked document.

WO 2004/088575 A1